Responsiveness Summary
February 1, 2021
Wildfire Exceptional Events Demonstration for Ground-Level Ozone in the Chicago 2008 Ozone Nonattainment Area

INTRODUCTION

This document is a Responsiveness Summary prepared by the Illinois EPA as part of its Exceptional Event Demonstration for ozone covering June 18 and 19, 2020. Illinois EPA followed the requirements of the Exceptional Events Rule [40 CFR 50.14(c)(3)(v)], which requires the Illinois EPA to "Document that the State followed the public comment process and that the comment period was open for a minimum of 30 days." The Illinois EPA opened its comment period on this matter December 21, 2020, with an original end date on January 20, 2021. After requests for additional time, the Illinois EPA agreed to a seven-day extension of the comment period, such that it ended on January 27, 2021. Also, a teleconference was held with certain interested groups and Illinois EPA staff to address the Exceptional Event Demonstration and answer questions. Post-teleconference, a written summary of the information presented was also sent to the groups, at their request, for distribution to those who could not attend the teleconference.

By the end of the comment period, six sets of comments were received – three in support of the Exceptional Events Demonstration, three conveying questions and/or concerns. All comments were reviewed and considered by the Agency.

The Exceptional Events Demonstration being submitted to USEPA is largely the same as the draft document that was put out to public notice. However, there are clarifications and additional information that should be considered by USEPA in response to the comments and questions below, such as further explanations of several points and more in-depth analysis of similar days.

COMMENTS WITH RESPONSES BY THE ILLINOIS EPA

Comments are shown in boldface and responses are shown in conventional text. Comments and responses are arranged by subject matter, paraphrasing and grouping similar comments and questions. Some comments in this document are depicted in a condensed or paraphrased from, rather than recited in full. In other instances, comments are retained in original form due to their complexity or level of specificity.

The Exceptional Events Rule requires that the Illinois EPA "Submit the public comments it received along with its demonstration to the Administrator" and "Address in the submission to the Administrator those comments disputing or contradicting factual evidence provided in the demonstration." For the sake of completeness, all significant comments that were submitted in response to the Exceptional Events Demonstration are being addressed in this Responsiveness Summary, including some that do not dispute or contradict factual evidence provided in the Demonstration and some which may not be relevant to the actual topic of the Demonstration.

Comments about the Specific Meteorological Evidence Presented in the Exceptional Events Demonstration

1. The 700 mb, 850 mb, and surface maps regarding the meteorological conditions driving smoke and ozone transport suggest a blocking pattern over the Midwest, so any smoke coming from Arizona would have been carried into Canada, not over Illinois. How do you know this was not the case?

It is acknowledged in the report that on June 16 and June 17, a high-pressure region directed the latter wildfire plumes to the north of Chicago while continuing to pull smoke from the south. The movement of the high to the northeast on June 18 relaxed the previously initiated blocking pattern and allowed smoke plumes – and the ozone precursors they contained – to enter the Chicago area both directly from the fire to the southwest and indirectly, from the recirculation region to the northeast on June 18 and June 19, 2020. Additional review of the episode and products available for inclusion in the study confirm the presence of smoke from Arizona wildfires in Chicago on these dates.

Additional information includes data from NOAA's High Resolution Rapid Refresh-Smoke model (HRRR-Smoke), a numerical weather prediction model that forecasts smoke's impact on several weather variables. Based on satellite observations of fire location and intensity, HRRR-Smoke predicts the movement of smoke in three dimensions across the U.S. over 48 hours, simulating how the weather will impact smoke movement and how smoke will affect parameters such as visibility, temperature, and wind.

Recent smoke forecasts using HRRR-Smoke and developed for June 18, 19, and 20, 2020, show the presence of predicted wildfire smoke from the Arizona fires reaching into Chicago during the episode of interest. The figures below present these forecasts and show the wildfire plume in a transport pattern stretching eastward from the Arizona wildfire complexes into the Upper Midwest and Ohio Valley regions and impacting the Chicago airshed during the episode of June 18-20, 2020. HRRR-Smoke forecasts shown below provide additional affirmation that smoke from Arizona wildfires reached Illinois as it traveled across the continental U.S. and into Canada (Figures 1-3).

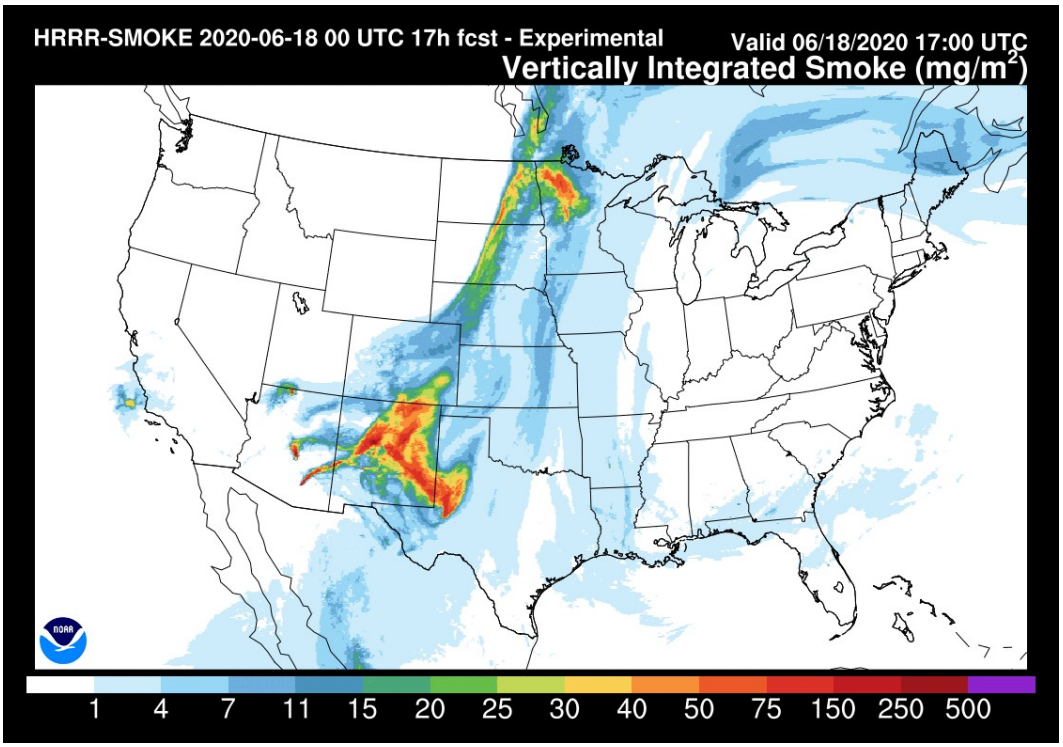

Figure 1. HRRR-Smoke forecast for the vertically integrated distribution of smoke from wildfires at 12 p.m. CDT June 18, 2020.

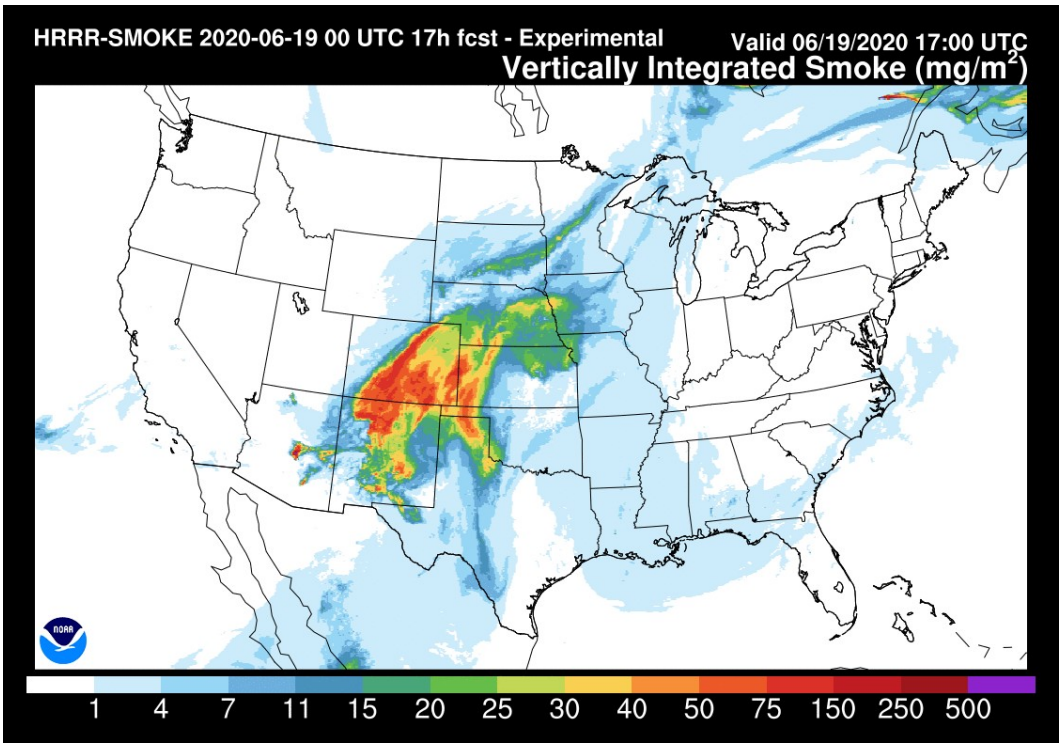

Figure 2. HRRR-Smoke forecast for the vertically integrated distribution of smoke from wildfires at 12 p.m. CDT June 19, 2020.

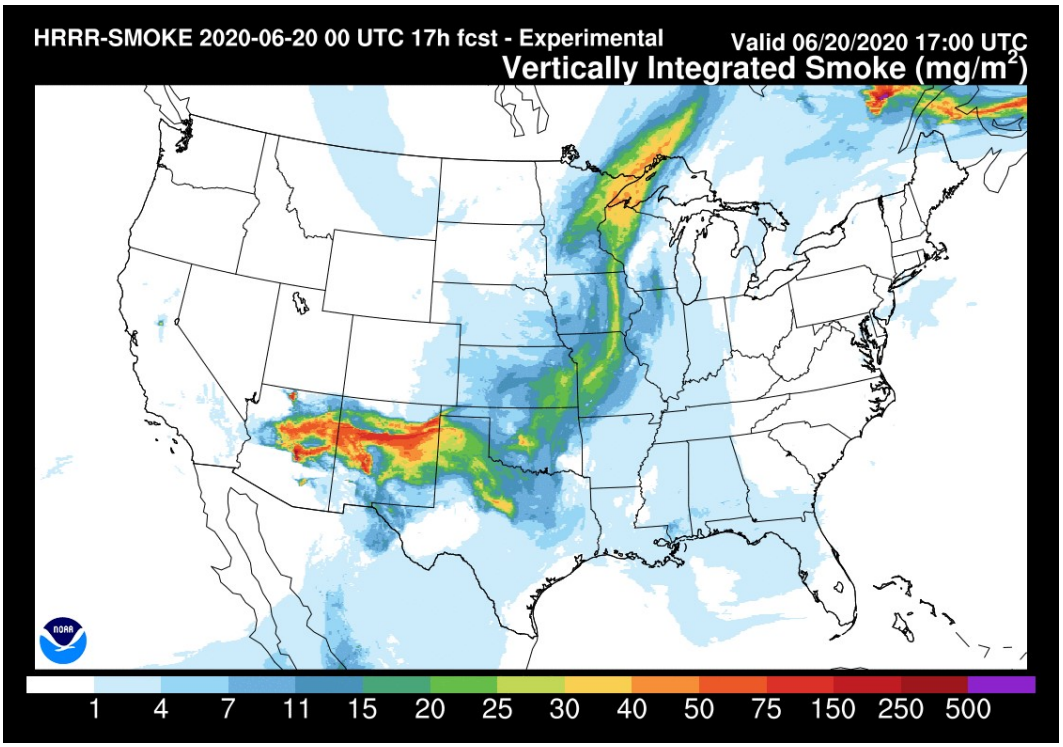

Figure 3. HRRR-Smoke forecast for the vertically integrated distribution of smoke from wildfires at 12 p.m. CDT June 20, 2020.

2. Why was the North American Mesoscale Forecast System (NAM) used for soundings? Models have extremely poor vertical resolutions compared to observations, so they should be used with caution. If a model needs to be used for soundings, use something with more vertical levels, like the HRRR.

Illinois recognizes that models have poor vertical resolutions compared with observational data and chose to include *both* modeled and observational data in the document to establish regional concurrence. The provided analysis uses the NAM modeled soundings for Chicago - O'Hare International Airport (ORD) since this station does not collect upper air measurements. However, the analysis also incorporates observational data collected at a nearby upper air station in Davenport, Iowa. Because the observational data collected at the Davenport station and modeled data at ORD – shown side-by-side in Figures 14 through 17 of the Exceptional Event Demonstration – show similar upper air profiles, the NAM output is shown to be reliable.

The NAM is one of the major weather models run by the National Centers for Environmental Prediction to produce weather forecasts. NAM grids include dozens of weather parameters, from temperature and precipitation to lightning and turbulent kinetic energy. The NAM generates multiple grids (or domains) of weather forecasts over North America at various horizontal resolutions. High-resolution forecasts are generated within the NAM using additional numerical weather models. These high-resolution forecast windows are generated over fixed regions and are occasionally run to follow significant weather events like hurricanes.

ORD soundings were modeled with the NAM 12km data set to maintain consistency between the modeled soundings and HYSPLIT trajectories that were also included as part of Illinois EPA's Exceptional Event Demonstration. HYSPLIT forward and backward trajectories were developed using pre-formatted 12 km NAM data publicly available from NOAA's Air Resources Laboratory.

The HRRR data were considered for the analysis, but as multiple experimental and operational versions of the model were released during the five-year period of interest, each with physics and numerics changes from previous versions, the decision was made to use NAM to prevent introduction of any inconsistencies in the results. The NAM model has 60 vertical layers with grid spacing chosen to adequately represent continental scale flow patterns such as are the focus of this Exceptional Events Demonstration. With these considerations in mind, the NAM model was the most appropriate choice for use in the Demonstration. As described above, Illinois EPA mitigated potential concerns regarding poor vertical resolutions for NAM-modeled sounding data by also including observational data captured at Davenport's upper air station – which showed similar upper air patterns as the modeled soundings at ORD. The alignment between modeled and observational upper air data included in the Demonstration emphasize that the NAM model reliably represented the vertical profile at ORD on the dates of the wildfire event.

3. Why was a pressure of 989 mb used? It was pretty hot and quite sunny most days that week, which happens when there is high pressure. A quick look at METAR reports from the Midway airport in Chicago on June 19, 2020, shows surface pressure was closer to 995 mb at the surface, or 1016 mb when adjusted to mean sea-level. Pressure was a couple millibars higher the previous day as well (around 997 mb at the surface on June 18).

As noted in the Demonstration document, 989 mb was the average observed pressure at the Northbrook monitor on June 19, 2020. The refined analysis presented in Response 11 below uses a pressure of 1016 mb for both June 18 and June 19, 2020, based on measurements collected at the ORD surface station.

4. Why was 87% used for the relative humidity? Midway METARs show relative humidity values closer to 30% during the day, when maximum ozone would have been recorded.

In the Demonstration document, this field was populated with the maximum relative humidity for each day. The initial selection of 87% for relative humidity was based on the maximum relative humidity on June 19, 2020. The refined analysis presented in Response 11 below replaced maximum relative humidity with average daily relative humidity.

5. Observed soundings in Wisconsin, Illinois, and Iowa on June 17-19 show one or more persistent capping inversions in the lower troposphere. It's likely that less tropospheric mixing occurred. If capping was present over much of the Midwest, pollutants were likely trapped below the inversion(s) for an extended period of time. Was the multi-day buildup of pollution considered in this Demonstration? Figures 19–20 and 28–30 strongly suggest a week-long buildup was a factor.

The use of soundings is designed to introduce the fact that smoke was additionally mixed from tropospheric levels at some point during the episode of interest, not that it was exclusively a result of that mixing. It is noted that the recirculation of low-level smoke was present during the episode (demonstrated by back trajectories and meteorological conditions). Both modeled and observed sounding data depict capping inversions which would have trapped pollutants – including any recirculated low-level smoke that was present – near the surface and enhanced ozone exceedances beyond what would have otherwise occurred under ozone forming conducive conditions.

The multi-day buildup of pollution was considered in the Demonstration and has now been further investigated as part of a typical non-event analysis. This analysis assesses ozone concentrations and meteorological parameters observed on June 18 and June 19, 2020, relative to those associated with 17 other days that also exceeded the 2008 ozone standard between 2016 and 2020. Table 1 lists all days used in the analysis, with days that HMS Smoke identified as potentially smoke enhanced highlighted in gray.

Table 1. Typical Non-Event Ozone Day Analysis: Comparison of Meteorology and 8-Hr Daily Maximum (MDA8) Ozone Levels

Date	MDA8 (ppb)	Max Temp (ºF)	Wind Speed (Avg mph)	Wind Dir (degrees)	Average Relative Humidity (%)	Sky
2016-05-24	79	86	7.4	204	44	Clear
2016-06-15	78	90	6.2	257	75	Clear
2016-06-19	79	88	6.5	229	51	Clear
2016-07-27	83	88	4.1	181	59	Clear
2016-08-04	83	90	4.8	202	63	Clear
2017-06-02	81	85	4.2	199	35	Clear
2017-07-18	82	88	3.0	237	61	Clear
2017-09-24	77	92	5.4	163	55	Clear
2018-05-24	77	85	4.4	162	53	Clear
2018-05-25	83	89	5.4	228	49	Clear
2018-05-27	96	97	3.8	170	50	Clear
2018-06-15	76	88	4.6	154	55	Clear
2018-07-13	84	93	5.6	202	50	Clear
2018-07-15	86	89	4.1	191	70	Few Clouds
2020-06-05	82	89	5.4	265	61	Clear
2020-06-18	**80**	**88**	**5.3**	**111**	**42**	**Clear**
2020-06-19	**82**	**93**	**4.4**	**234**	**43**	**Clear**
2020-07-03	78	90	4.1	101	55	Clear
2020-07-06	79	94	3.7	195	51	Clear

Figure 4 below presents the diurnal profiles of 1-hour ozone observations for the June 18 and June 19, 2020, episode days, as well as the remaining 17 days included in the typical non-event analysis. The gray line represents the average hourly ozone observations for all 13 potentially smoke-enhanced days, excluding June 18 and June 19, 2020. The blue line represents average hourly ozone observations for the six typical non-smoke ozone exceedance days. The red line includes only hourly ozone observations for June 18, 2020, and the orange line includes only hourly ozone observations for June 19, 2020.

Bars at the bottom of Figure 4 address differences in hourly ozone trends between smoke enhanced days and typical ozone event days. The gray bar compares average hourly ozone values for potentially smoke enhanced days (gray line) with the average hourly ozone values for typical non-smoke ozone event days (blue line). The red bar compares June 18, 2020, hourly ozone observations (red line) with average hourly ozone values for typical non-smoke ozone event days (blue line). The orange bar compares June 19, 2020, hourly ozone observations (orange line) with average hourly non-smoke ozone values for typical ozone event days (blue line).

The significantly higher than average midnight (hour 0) ozone concentrations observed at the Northbrook monitor on both June 18 and 19, 2020, show the buildup of pre-episode ozone. Figure 4 shows midnight ozone concentrations that are 30 ppb higher on June 18 and 18 ppb higher on June 19 than the average typical non-smoke ozone exceedance day observations (blue line with ± one standard deviation bars). Concentrations remained high during the early morning hours of both event dates and led to more rapid ozone formation in the late morning and early afternoon. Pre-episode ozone buildup also contributed to the delay of ozone decay in the late afternoon on June 18 and June 19, 2020.

During afternoon hours, average potential smoke enhanced daytime observations (gray line) were consistently higher than averaged typical non-smoke ozone exceedance day hourly observations (blue line). An increase in wind speeds were observed[1] at ORD starting at 11 AM CT (Tables 2 and 3) through about 6 PM CT on both days. This measured increase in wind speed was consistent with the decrease in smoke enhanced ozone formation during that time. As the winds again decreased, the residual smoke from the wildfire again mixed with local precursor emissions to increase ozone observations above levels of typical non-event ozone exceedance days. These meteorological conditions are presented in Tables 2 and 3.

[1] https://www.wunderground.com/history/daily/us/oh/vandalia/KDAY/date/2020-6-20

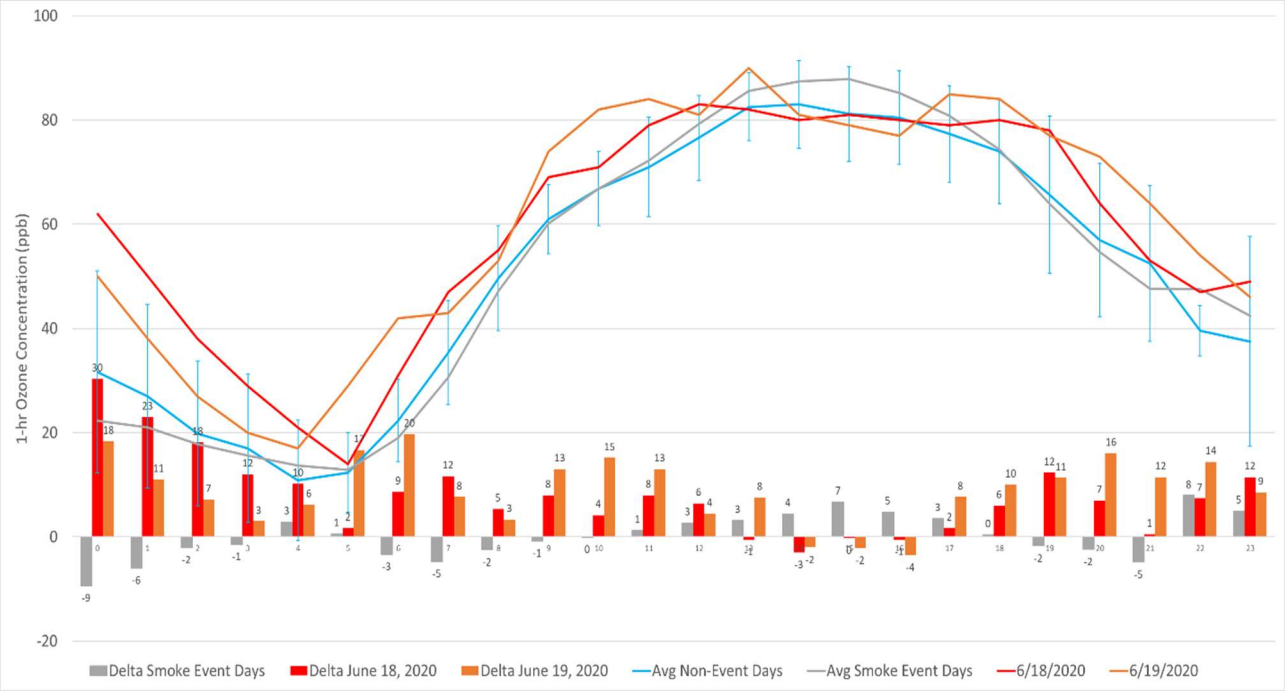

Figure 4. Diurnal ozone (ppb) profiles for Northbrook monitor.

Table 2. Hourly weather observations at ORD on June 18, 2020

Time	Temperature	Humidity	Wind	Wind Speed	Pressure	Condition
12:51 AM	70 F	55 %	CALM	0 mph	29.33 in	Fair
1:51 AM	69 F	57 %	CALM	0 mph	29.32 in	Fair
2:51 AM	67 F	61 %	CALM	0 mph	29.32 in	Fair
3:51 AM	66 F	68 %	CALM	0 mph	29.33 in	Fair
4:51 AM	66 F	70 %	CALM	0 mph	29.35 in	Fair
5:51 AM	71 F	55 %	SE	3 mph	29.35 in	Fair
6:51 AM	77 F	42 %	SSW	5 mph	29.36 in	Fair
7:51 AM	80 F	36 %	SW	6 mph	29.36 in	Fair
8:51 AM	84 F	34 %	CALM	0 mph	29.35 in	Fair
9:51 AM	85 F	31 %	CALM	0 mph	29.34 in	Fair
10:51 AM	88 F	29 %	VAR	3 mph	29.33 in	Fair
11:51 AM	88 F	29 %	NNE	6 mph	29.31 in	Partly Cloudy
12:51 PM	87 F	29 %	ESE	13 mph	29.30 in	Mostly Cloudy
1:51 PM	87 F	28 %	E	14 mph	29.29 in	Fair
2:51 PM	87 F	27 %	E	13 mph	29.28 in	Fair
3:51 PM	87 F	26 %	E	12 mph	29.27 in	Fair
4:51 PM	86 F	29 %	E	9 mph	29.24 in	Fair
5:51 PM	83 F	32 %	E	12 mph	29.23 in	Fair
6:51 PM	81 F	34 %	ESE	8 mph	29.24 in	Fair
7:51 PM	78 F	39 %	E	6 mph	29.25 in	Fair
8:51 PM	77 F	43 %	ESE	3 mph	29.28 in	Partly Cloudy
9:51 PM	75 F	50 %	ESE	7 mph	29.28 in	Partly Cloudy
10:51 PM	74 F	50 %	ESE	3 mph	29.28 in	Partly Cloudy

Table 3. Hourly weather observations at ORD on June 19, 2020

Time	Temperature	Humidity	Wind	Wind Speed	Pressure	Condition
12:51 AM	71 F	61 %	CALM	0 mph	29.27 in	Mostly Cloudy
1:51 AM	71 F	59 %	NNW	3 mph	29.25 in	Mostly Cloudy
2:51 AM	71 F	59 %	CALM	0 mph	29.25 in	Mostly Cloudy
3:51 AM	69 F	63 %	CALM	0 mph	29.25 in	Mostly Cloudy
4:51 AM	69 F	63 %	CALM	0 mph	29.28 in	Mostly Cloudy
5:51 AM	72 F	59 %	CALM	0 mph	29.29 in	Fair
6:51 AM	77 F	52 %	SW	3 mph	29.29 in	Fair
7:51 AM	82 F	44 %	CALM	0 mph	29.29 in	Fair
8:51 AM	86 F	38 %	W	7 mph	29.29 in	Fair
9:51 AM	87 F	35 %	SSW	7 mph	29.29 in	Partly Cloudy
10:51 AM	89 F	32 %	W	6 mph	29.29 in	Partly Cloudy
11:51 AM	90 F	30 %	SW	12 mph	29.27 in	Partly Cloudy
12:51 PM	90 F	30 %	WSW	9 mph	29.27 in	Partly Cloudy
1:51 PM	91 F	28 %	WSW	9 mph	29.25 in	Partly Cloudy
2:51 PM	93 F	26 %	SW	12 mph	29.24 in	Partly Cloudy
3:51 PM	93 F	27 %	WSW	9 mph	29.23 in	Partly Cloudy
4:51 PM	91 F	29 %	WSW	9 mph	29.23 in	Partly Cloudy
5:51 PM	91 F	29 %	SW	8 mph	29.23 in	Partly Cloudy
6:51 PM	88 F	34 %	NNW	5 mph	29.24 in	Mostly Cloudy
7:51 PM	83 F	41 %	ESE	5 mph	29.25 in	Partly Cloudy
8:51 PM	82 F	44 %	ESE	5 mph	29.26 in	Partly Cloudy
9:51 PM	80 F	47 %	CALM	0 mph	29.26 in	Partly Cloudy
10:51 PM	79 F	48 %	SE	3 mph	29.25 in	Fair

From a multi-day buildup perspective, data presented above indicate that the buildup/carryover is more significant during the June 18 and 19, 2020, event than during a typical non-smoke ozone exceedance and suggests that measured exceedances on these dates were not solely attributable to ozone buildup.

Figure 5 below provides further emphasis that ozone build-up/carryover is not as significant during a typical non-smoke ozone exceedance as it is during the June 18 and 19, 2020, events. Each exceedance day in the figure below is represented by the averaged diurnal profile on the right of the plot. The gray line represents the diurnal profile average of potential smoke exceedance days (the averaged exceedance day peak on the far right, the previous two days averaged and to the left), the blue line represents the diurnal profile average of typical non-smoke ozone exceedance days (again, the exceedance day on the far right, averaged previous two days to the left), and the red and orange lines represent the June 18 and June 19, 2020, diurnal profiles, respectively. Dotted lines of the same color represent the linear trend of 1-hour ozone during the buildup period. Both June 18 (red) and June 19 (orange) show a significantly greater positive slope during buildup to the event day compared to typical non-smoke exceedances (blue). Large positive slopes observed on June 18 and June 19, 2020, indicate a significant buildup of ozone on those dates and characterize the episode as atypical.

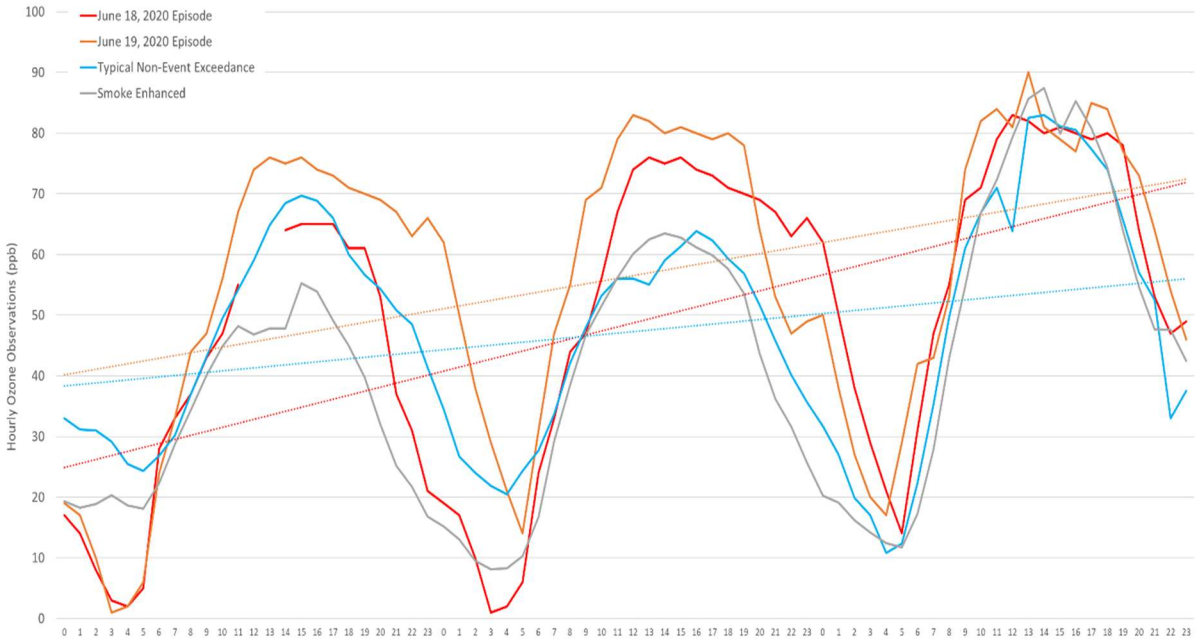

Figure 5. Multi-day diurnal ozone (ppb) profiles for Northbrook monitor.

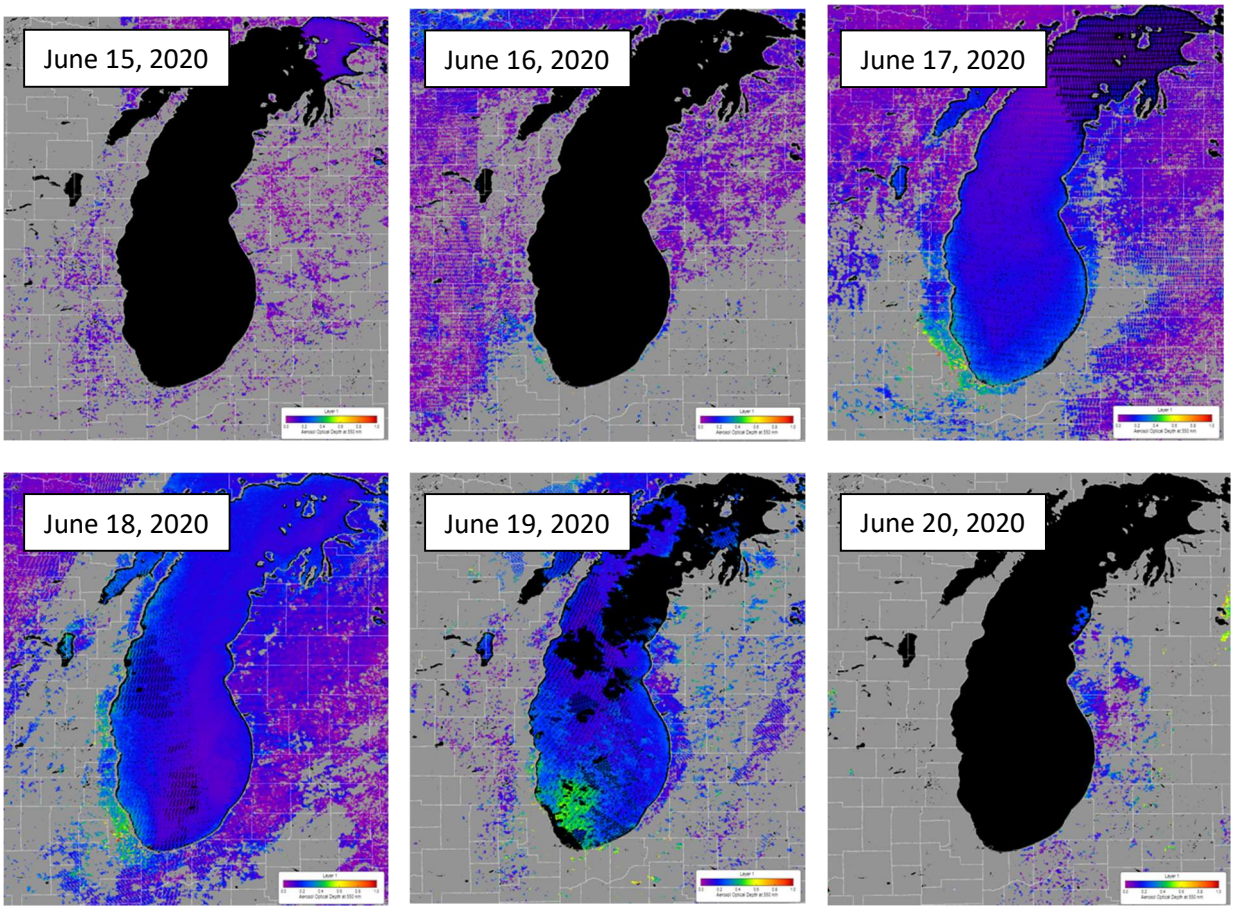

Figure 6. AOD Measurements from Suomi NPP Satellite Observations Between June 15 and June 20, 2020

Comments about Satellite Imagery/Visual Evidence Presented in the Exceptional Events Demonstration

6. It seems to be a stretch to claim that the elevated AOD directly offshore of Chicago in Figure 43 is a result of the AZ fires, and not simply a result from the urban area, considering there is not elevated AOD anywhere else in the region.

It is true that aerosol optical depth (AOD) *by itself* is not an indicator of wildfire smoke from Arizona and can be influenced by local anthropogenic emissions and ozone precursor concentrations. In this analysis, it was used as part of the overall weight of evidence and in a relative sense. Looking at multiple days when smoke was not present in the region, it was found that the AOD was not as pronounced as it was during the June episode when smoke was present in the region. The time series of AOD measurements below documents Suomi NPP satellite observations between June 15 and June 20, 2020. Smoke was observed and had the greatest impact the area between June 17 and June 19, consistent with the greatest measured AOD present in the region (Figure 6).

7. I'm not convinced smoke is "clearly" visible in the blue circles in Figures 24-27 within the Exceptional Event Demonstration. The lighter tones in the blue circles might be an artifact from sunlight reflection off water bodies while the satellite was passing over. It's something that's commonly seen over the oceans in visible imagery.

The commenter seems to be describing sunglint, which occurs when sunlight reflects off the surface of water and can make water appear gray, silver, or white. Sunglint happens when the sun reflects off a surface at the same angle that an observational device, like a satellite, is using to view surface information. Differentiating between smoke, clouds, sunglint, and other phenomena requires an understanding of shape and texture of the unknown element, as well as the context in which it appears.

Smoke is typically smooth and ranges in color between brown and gray. The images from MODIS that are circled in blue in Figures 24 through 27 of the Demonstration do not always appear to be definitively brown or gray. Therefore, context may be the most useful tool to defend the description of the smoke as clearly visible – particularly for Figures 26 and 27 (June 18 and June 19) in the demonstration document. Namely, observational data from other sources including the HMS smoke analyses (Figures 28 through 30 in the Demonstration document), imagery from other satellites, and aerosol retrieval information also point to the presence of smoke in the Chicago metropolitan area on June 18 and June 19. If the images shown in Figures 26 and 27 of the Demonstration were solely the byproduct of sunglint, other observational data would likely not indicate the presence of smoke.

Specifically, research published in Atmospheric Remote Sensing notes that smoke and dust particles have specific optical properties that set them apart from clouds and underlying surface reflectivity.[2] Satellites, including those featured in the Illinois EPA's Exceptional Event

2 Zhao, Tom X.P., Steven Ackerman and Wei Guo. 2010. Dust and Smoke Detection for Multi-Channel Imagers. Atmospheric Remote Sensing. 2(10): 2347-2368.

Demonstration's analysis, can identify these signatures. The discussion section of the same academic paper published in Atmospheric Remote Sensing also highlights that there is no aerosol optical thickness retrieval in sunglint regions as MODIS has gaps in bright areas, which include sunglint regions over the ocean. Likewise, it seems reasonable to conclude the gaps would exist for any sunglint regions over Lake Michigan. However, the Exceptional Events Demonstration provided by Illinois EPA includes aerosol optical depth information from both MODIS (Figure 41) and CALIPSO (Figures 32 and 34), which suggests that the blue circles shown in Figures 24 through 27 are unlikely to be solely attributable to sunglint.

The information presented by Illinois EPA in its Exceptional Event Demonstration document provides further assurance that the imagery shown in Figures 24 through 28 is smoke. Output from HMS Smoke indicates the presence of smoke in the air column. CALIPSO satellite data captures polluted continental and smoke – which could both be representative of wildfire smoke within the planetary boundary layer (PBL) – and extending to ground level in the Chicago metropolitan region. Moreover, speciated PM2.5 data collected at the surface confirm that smoke reached the surface on the dates of the exceptional event. Together, these data support the assertion that imagery in Figures 24 through 28 are smoke.

8. I do not believe the "smoke" over the Great Lakes in the MODIS Terra satellite image in Figure 26 is in fact smoke. Visual inspection of the image shows that "smoke" in the image is located only over Lakes Michigan and Superior, but not over the nearby land. I would argue the image is capturing low level fog or clouds resulting from unique meteorology over the lakes. Also, I am having trouble discerning any smoke/clouds/fog within the circled area over Ohio/Michigan in Figure 27.

The smoke is most likely more visible to the commenter over the lake because the smoke is simply more visible against the blue background of the water than the brown/green background of the land. Terra images are but one of the components used to demonstrate smoke was present in the region on the episode days. The MODIS Terra satellite image shows smoke over the Great Lakes based on additional information, including data collected from HMS Smoke, CALIPSO satellite data and speciated particulate matter data. These data are addressed in Response 7 above and more substantially in Response 9 below.

9. The CALIPSO images seem to provide weak support that smoke aerosol was near the surface in the Great Lakes region. The majority of the aerosol near the Lake Michigan region is classified as "polluted continental/smoke" and "polluted dust." There are few occurrences of aerosol classified as "elevated smoke," and these occurrences typically are observed east and west of Illinois, and sometimes above the boundary layer. Are there additional observational data that could be included that would support the claim that the aerosol was from wildfire smoke and not simply a result of anthropogenic emissions?

CALIPSO retrievals presented in the demonstration indicate that a mixture of dust, polluted continental, and smoke associated with wildfire plumes were present at the surface layer during June 18 and 19, 2020. In 2016, CALIPSO underwent additional refinements. Its version 4 update

included significant improvements to aerosol subtyping capabilities and adjustments to previous classifications of elevated smoke and polluted continental/smoke. A paper published by Kim et al (2018)[3] clarifies updated aerosol subtype classifications from CALIPSO such that:

"[E]levated non-depolarizing aerosols are assumed to be smoke that has been injected above the planetary boundary layer (PBL). The definition for elevated is revised in V4 to mean layers with tops higher than 2.5 km above ground level (i.e., a simple approximation of a region above the PBL; McGrath-Spangler and Denning, 2013). For clarity, the name of the smoke aerosol subtype is changed to 'elevated smoke' to emphasize that these layers are identified as smoke because they are elevated above the PBL. Within the PBL, the optical properties measured by the Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP) satellite (depolarization and color ratio) are practically identical for the smoke and polluted continental subtypes, making them indistinguishable. To acknowledge the optical similarity of polluted continental and smoke, the name of this aerosol type is changed in V4 to 'polluted continental/smoke'. The V4 lidar ratios used in the CALIOP retrieval algorithm are identical for polluted continental/smoke and elevated smoke (70 sr at 532 nm and 30 sr at 1064 nm). However, one limitation of identifying smoke layers according to altitude is that pollution lofted by convective processes or other vertical transport mechanisms can be misclassified as elevated smoke."

In other words, CALIPSO classifications of polluted continental and smoke could both be representative of wildfire smoke within the PBL. It would be difficult, if not impossible, to differentiate between the two. The Exceptional Event Demonstration used CALIPSO in conjunction with HMS Smoke to demonstrate that smoke from Arizona wildfires reached the surface in the Chicago metropolitan region. HMS Smoke data presented in the analysis indicates the presence of smoke in the air column. Output from CALIPSO shows polluted continental and smoke extending to ground level. However, these tools were not the only indicators that the layer containing smoke reached the surface.

Additional ground level observational data are presented in the demonstration. These data include measurements of potassium ion, PM2.5, CO, and elemental carbon (EC) concentrations. The potassium ion component of PM2.5 is a known indicator of biomass burning and wildfire emissions, so comparing these chemical compounds against the monitored 8-hour maximums for the episode days can provide evidence regarding the impact of such emissions.

10. The HYSPLIT back trajectories for June 18-19, 2020, are originating east of Illinois, not from Arizona (Figures 39-40).

Figures 39 and 40 in the document demonstrate that wildfire smoke plume, which had moved in from the Mississippi Valley and upper Midwest just before the June 18, 2020, episode day, was resident over the entire region during the days of interest, and was not just present to the north or west of the monitor. The back trajectories, while originating east of the Chicago NAA, were

[3] Kim et al. (2018) Atmos. Meas. Tech, 11, 6107-6135

completely contained within the observed smoke plume and demonstrate that the air parcel that was measured at the monitor on June 18 and 19, 2020, was influenced by this plume. Additional supporting information in the demonstration document explains that the plume associated with this smoke enhanced ozone concentrations on the days of the ozone events on June 18 and 19, 2020, even as it continued to be drawn into the region through June 20, 2020.

Comments about Similar Day Analysis Evidence Presented in the Exceptional Events Demonstration

11. Why was only June 19 selected for the Similar Day Analysis when the Demonstration encompasses two days of ozone exceedances? How many potential similar days were originally identified based on the stated meteorological parameters and what criteria were used to winnow the larger list down to only four days for comparison?

June 19, 2020, was initially selected for the similar day analysis simply because it was the higher of the two concentration observations, which were comparable in meteorological properties. Similar days were identified within the past five years, using a review of historical meteorological records at the Northbrook location with days reaching at least 85 degrees Fahrenheit (F), wind speed less than 7.0 miles per hour (mph), average relative humidities between 50% and 70%, wind direction out of the south-southeast (90 – 180 degrees), and no noted presence of smoke over the region on or in the 48 hours prior to the day using NOAA HMS smoke products. From these days, four were ultimately selected based on these conditions and a subsequent review of similar 48-hour back trajectory plots and surface and elevated pressure maps.

In response to these public comments, Illinois EPA has expanded its similar day analysis to include comparisons for both June 18 and June 19, 2020. The maximum relative humidity values were replaced with average relative humidity values as averages may be more representative of ambient conditions during the 8-hour averaging periods used to measure ozone concentrations. All meteorological data shown in the tables below were collected from the ORD surface station and identify a slightly different set of ranges for use in each episode day's similar day analysis (Tables 4 and 5). In both cases, temperatures of 85 degrees F or greater, winds of less than 7.0 mph, and an average relative humidity between 40% and 50% were used. For June 18, 2020, days were also parsed using average wind direction out of the E-SE while on June 19, 2020, winds were selected as originating from the SW.

Table 4. Similar Day Analysis: Comparison of MDA8 Ozone Levels at Northbrook Monitor for June 18, 2020

Date	Max Temp (°F)	Wind Speed (Avg mph)	Wind Dir	Avg Relative Humidity (%)	Pressure (mb)	MDA8 (ppb)
6/18/2020	88	5.3	E-SE	42	1016	80
6/18/2016	87	5.0	E	46	1023	53
9/25/2017	92	4.9	SE	49	1016	63

6/8/2020	90	6.3	SE	45	1013	67
6/17/2020	86	5.6	ESE	46	1023	73

Table 5. Similar Day Analysis: Comparison of MDA8 Ozone Levels at Northbrook Monitor for June 19, 2020

Date	Max Temp (°F)	Wind Spd (Avg mph)	Wind Dir	Avg Relative Humidity (%)	Pressure mb	MDA8 (ppb)
6/19/2020	93	4.4	SSW	43	1016	82
5/25/2018	89	5.4	SW	49	1013	83
7/13/2018	93	5.6	SSW	50	1019	84

As Table 4 shows, four potentially comparative days were selected using these parameter ranges for comparison with the June 18, 2020, event date. Two potentially comparative days were selected for the June 19, 2020, episode day based on the unique meteorological characteristics of that day (Table 5).

Of these days, June 18, 2016; September 25, 2017; and June 8, 2020, met the additional constraints of no observed smoke in the region from the HMS satellite observations. The days of May 25, 2018; July 13, 2018; and June 17, 2020, all had HMS observed smoke in the Chicago region on that day or in the 48-hours prior, eliminating them from the comparison (highlighted in gray in tables above).

12. Overall, the observed meteorology during the course of this event could have been the cause of the ozone exceedances that were measured. This document does is not convincing that the AZ fires were the only reason maximum 8-hour averages of ozone reached 80 ppb and 82 ppb on June 18 and 19 respectively and does not clearly establish that the monitor would not have registered exceedances of the NAAQS on those dates without the influence of wildfire smoke.

The Demonstration does not suggest that the smoke from the wildfires was the *only* reason for the exceedances observed on June 18 and 19, 2020. The Exceptional Event Demonstration document notes that the meteorological conditions that existed during the event could have potentially caused elevated ozone at usual summer season levels without the increased burden of the additional wildfire-related emissions. However, the influence of the Arizona wildfire smoke plume emissions caused additional impact that elevated ozone levels well beyond normal expectations. This is an important distinction, given that annual fourth high values, collected over a three-year period at the Northbrook monitor, are the basis for the design value used to assess attainment/nonattainment for the Chicago metropolitan area.

A similar day analysis provided in the Exceptional Event Demonstration document differentiates the impacts of June 18 and June 19, 2020, from other days with similarly ozone conducive meteorological conditions that lack HMS Smoke observations. Findings from this analysis demonstrate that, without the potential influence of smoke, days with similar meteorological

parameters yield ozone concentrations between 13 and 23 ppb lower than measurements collected on the dates of the exceptional event. (See Response 11 above for a more in-depth explanation of the methodology used to refine the similar day analysis.)

Comments Items Commenters Claim Should Have Been Included in the Exceptional Event Demonstration

13. Don't states near the Great Lakes provide forecasts for air quality, including ozone? I don't see anything in this document regarding what the predicted ozone levels were for the June 18-19, 2020, period. Since the models don't account for wildfire smoke, the Demonstration would be strengthened by the inclusion of simulations showing that model-predicted air quality for the days of June 18-19, 2020, was better than the air quality that was actually observed.

First, Illinois EPA needs to correct information that had been previously provided to environmental organizations during an informal meeting. While all of the available published material the Agency found indicated that the model used for forecasting already included wildfire smoke, the Agency continued pursuing the question to ensure accuracy. In corresponding with personnel who oversee the model on a national level, it was found that due to problems with the smoke portion of the model, it was turned off during a timeframe that included June 18 and 19, 2020.

The forecasts in question are provided by states near the Great Lakes, including Illinois, to keep the public informed about local air quality. Illinois EPA submits ozone air quality forecasts and air quality alerts through the AirNow forecast system. Illinois EPA submits forecasts by Air Quality Index (AQI) category, rather than by either a numeric AQI value or an expected pollutant concentration. AQI categories range from good air quality (green category), up to hazardous air quality (maroon category). For example, if Illinois EPA forecasts that the air quality will be Unhealthy for Sensitive Groups or "USG" (orange category), members of the public will know to take precautions if they fall into that group.

One data source used by the Illinois EPA to inform its air quality forecasts is the National Air Quality Forecast Capability (NAQFC) ozone guidance model. Although the NAQFC ozone model produces a numeric AQI value, Illinois EPA's experience with the model indicates that the AQI values NAQFC provides are not accurate enough to include in Illinois EPA's local air quality forecasts. Because the NAQFC ozone guidance model relies on input from a single weather model, its predictions depend on that weather model's ability to generate verifiable forecasts. Because the intent of Illinois EPA's air quality forecasts is to notify the public of the general air quality, rather than to provide specific concentration estimates, Illinois EPA only uses values from the NAQFC ozone model in an advisory capacity, to help inform Illinois EPA's selection of an appropriate AQI category for each of its air quality forecasts. Likewise, Illinois EPA does not keep a permanent record of the numeric AQI values produced by the NAQFC ozone model and cannot point to a specific forecasted ozone concentration for the days in question for comparison with observed ozone concentrations. That is simply not the intent of the

Agency's air quality forecasting. Likewise, AQI values were not originally included in the Demonstration document.

However, in response to this comment, the Agency has reviewed its air quality forecasts for June 18 and June 19, 2020. The results of its review support the Exceptional Events Demonstration because actual ozone concentrations were generally higher than the ozone concentrations associated with the AQI categories that Illinois EPA forecasted on these days. The ozone air quality forecast for June 18, issued on June 17, was initially set to USG for the entire Chicago area based on a combination of ozone and separate weather prediction model outputs, the experience of Agency meteorologists, and discussions with other nearby state air quality forecasters. By the afternoon of June 18, actual ozone concentrations increased higher than initially predicted and it became apparent these concentrations might reach a higher AQI category than Illinois EPA forecasted on June 17.

Due to this new information, the short-term forecast for the rest of the day was increased for parts of Chicago from USG to Unhealthy and the forecast for June 19 was kept as USG. A review of ozone concentrations measured on June 18 showed that several monitors in the Chicago area reached the Unhealthy AQI category, with some monitors reaching an 8-hour average as high as 90 parts per billion (ppb). By the early afternoon hours of June 19, ozone concentrations once again increased higher than initially predicted. The short-term forecast for the remainder of the day was again increased from USG to Unhealthy for parts of Chicago. A review of concentrations for June 19 showed several monitors reaching the Unhealthy category for a second day in a row with the highest monitor reaching an 8-hour average of 99 ppb.

Unexpected ozone increases echo findings from a non-event day analysis presented in Illinois EPA's Response 5 above. These data indicate that the ozone buildup/carryover on June 18 and June 19 were more significant than buildup/carryover associated with typical non-smoke exceedance days – making their effects more difficult for forecasters to anticipate. For both days that are subject of the Exceptional Events Demonstration, initial Agency forecasts reinforce that Illinois EPA did not expect ozone levels to reach the actual concentrations observed in the Chicago area. On both days, actual ozone concentrations caused the Agency to note the unexpectedly higher AQI category. These findings support Illinois' conclusion that wildfire smoke, which was not incorporated into the model nor into Agency staff's considerations, increased ozone values above those which would have been expected.

14. Illinois failed to provide adequate "but-for" causation demonstrating that high ozone levels were not the result of increased nearby emissions and it would be contrary to the Clean Air Act to allow a state to demonstrate an exceptional event without showing that the NAAQS would not have been exceeded but-for the exceptional event.

The comment is unfounded. In 2016, USEPA revised its guidance pertaining to the Exceptional Events Rule, to improve the efficiency of the exceptional events demonstration development and review process. Revisions were also intended to *better align the rule* with existing language in

the Clean Air Act (CAA). One such revision was to remove the "but-for" criterion aspect of the rule language.[4] As such, there is no requirement to provide such information as the commenters suggest. Although the "but-for" criterion is no longer necessary to support exceptional event demonstrations, Illinois EPA has provided a supplemental analysis below to address the commenter's concerns regarding the potential impacts of nearby emissions.

Locally, emissions from urban areas add to the regional background, leading to ozone concentration hot spots downwind. Depending on the synoptic wind patterns, different downwind areas are affected.

Electric generating units (EGUs) are a major source of ozone precursors. EGUs can produce large amounts of emissions over a short duration and generally emit at stack elevations conducive to transport. During hot days, many of the less frequently used EGUs come online to supply the high electric demand of air conditioning and refrigeration along with base load units operating at full capacity.

USEPA's preliminary transport modeling for the 2015 ozone standard[5] shows that ozone in the area is most influenced by emissions from Ohio, Indiana, Kentucky, and Michigan, in addition to Illinois' own emissions. Figures 7 and 8 show that EGU NOx emissions[6] from these states during the ozone season, specifically in June, have significantly decreased from 2016 to 2020.

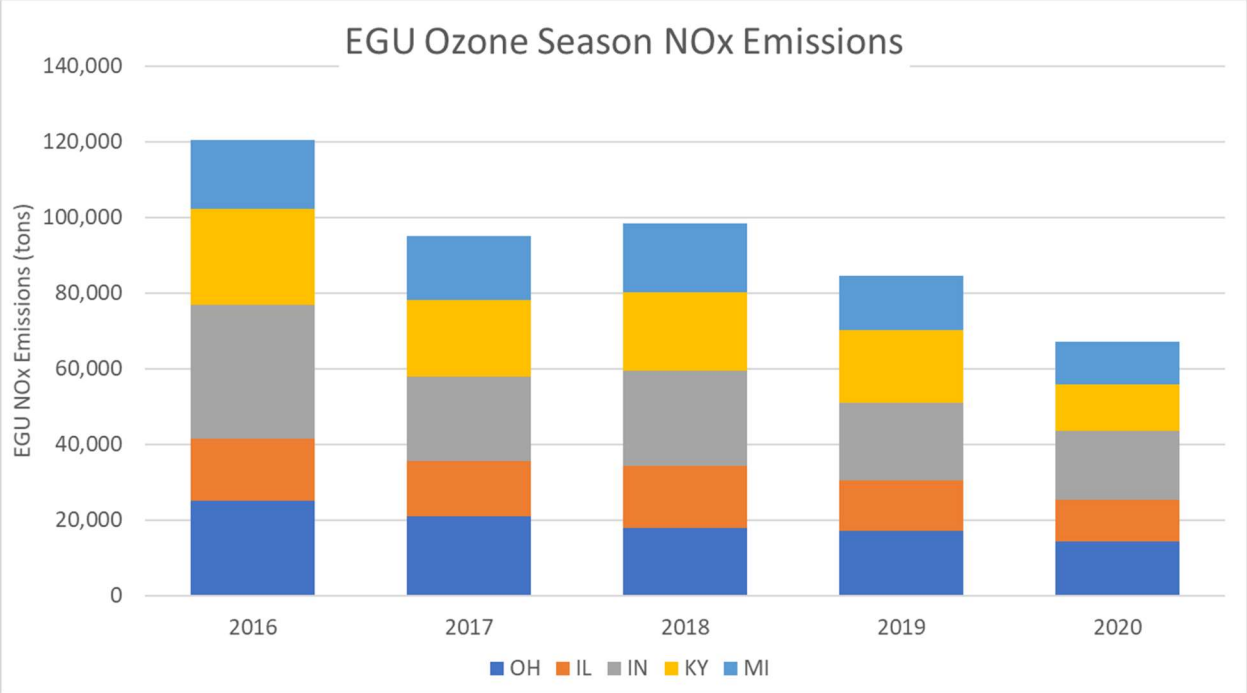

Figure 7. 2016-2020 EGU NOx Emissions (OH, IL, IN, KY, MI) – Ozone Season

[4] U.S.EPA (2016). Final Rule Revisions to the Exceptional Events Rule and Announcement of Availability of Final Exceptional Events Implementation Guidance for Wildfire Events Fact Sheet. Available from: https://www.epa.gov/sites/production/files/2018-10/documents/fact_sheet_exeventsrevs_frn_09-15-16_final.pdf

[5] https://www.epa.gov/sites/production/files/2017-01/documents/aq_modeling_tsd_2015_o3_naaqs_preliminary_interstate_transport_assessmen.pdf

[6] Data obtained from USEPA's Clean Air Markets Division (CAMD) at https://ampd.epa.gov/ampd/

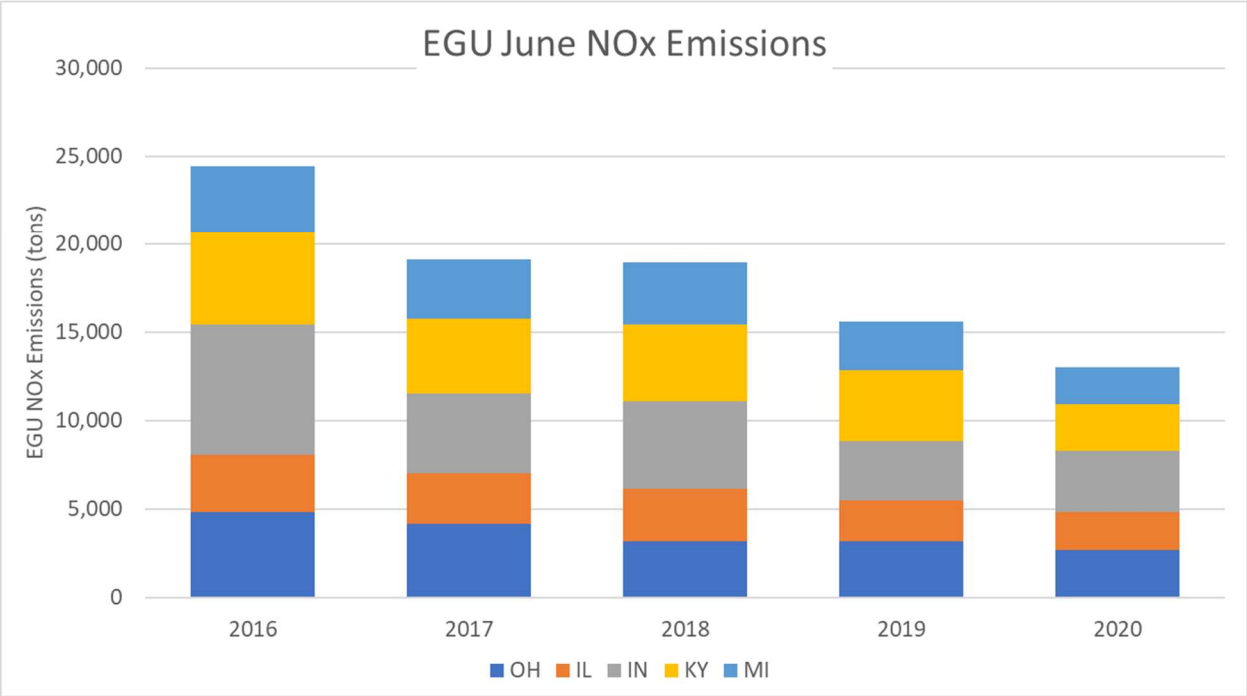

Figure 8. 2016-2020 EGU NOx Emissions (OH, IL, IN, KY, MI) – June

To further evaluate whether the increased NOx observed was carried within the smoke plume and was not simply from upstream EGUs (a typical "non-event" exceedance characteristic), a NOx to ozone ratio for the ozone season was developed. Generally speaking, less NOx means less ozone. Thus, an airmass characterized by an abundance of ozone that is also impacted by EGU NOx emissions will maintain a high or constant NOx to ozone ratio. A reduction in NOx emissions leads to reductions in ozone. In this scenario, the ratio would remain relatively constant. However, an airmass producing abundant ozone without substantial increases in anthropogenic NOx emissions produces a low ratio and indicates a highly efficient, ozone-productive airmass composition. Such a scenario indicates additional influences on the airmass composition.

Since most other anthropogenic source emissions are assumed to be relatively constant between workdays, emissions from sources such as EGUs must not change significantly between days to conclude that the smoke played the integral part in these exceedances. If the EGU NOx emissions were insignificant to ozone production across the region as compared to the contribution to ozone supplied by the smoke, the EGU NOx to ozone ratio should be quite low. If ozone production were dependent on EGU NOx output, the ratio would remain constant and/or high.

Figure 9 provides daily state-level EGU NOx emissions from states determined by USEPA to be contributors to ozone formation in the Chicago region compared to observed MDA8 ozone concentrations at the Northbrook monitor. Each line represents state total EGU NOx emissions as obtained from the Clean Air Markets Division[7] with red diamonds representing the MDA8

[7] https://ampd.epa.gov/ampd/

values. The June 18-19, 2020, episode is denoted by the gray column. The figure suggests that on the exceptional event days highlighted in gray, increased ozone levels were not the result of increased nearby EGU emissions. This is represented by the high MDA8 values (red diamonds) and relatively low change and magnitude of daily EGU NOx emissions (different colored lines) around the event.

If high observations were a result of higher EGU emissions in the region, significant changes in height of the peaks of the representative state total lines would correlate to high values represented by the red diamond. During the June 18-19, 2020 episode, upwind state emissions are relatively low compared to the rest of the ozone season, although the observed MDA8 values are among the highest recorded for the year.

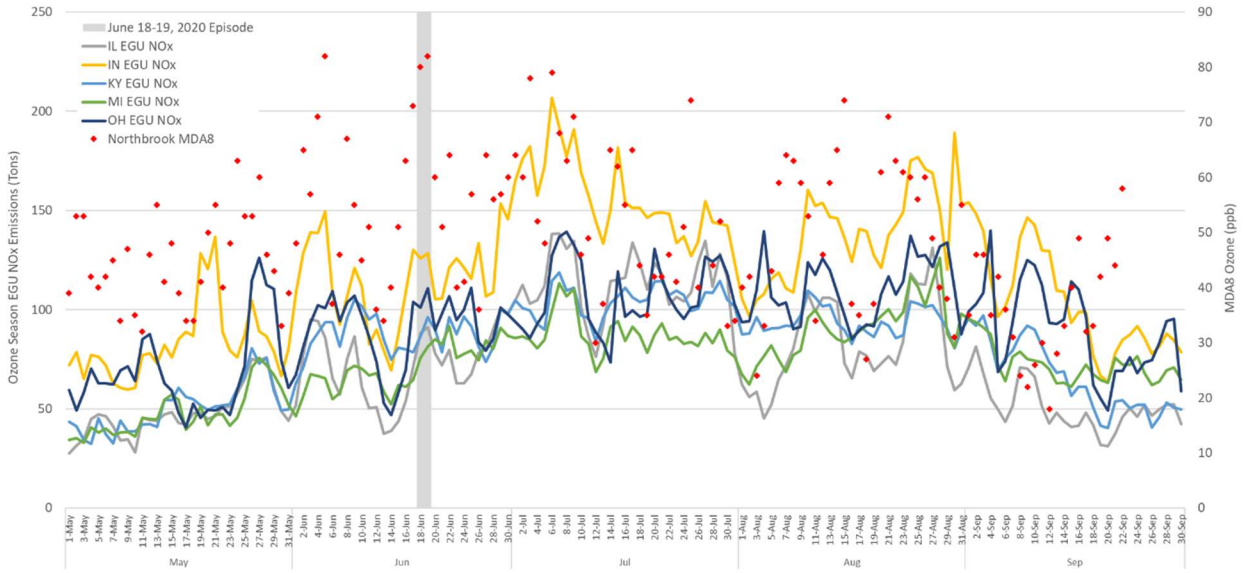

Figure 9. Daily 2020 Ozone Season EGU NOx Emissions and Northbrook Water Plant MDA8 Ozone

Daily EGU NOx/ozone ratios were also calculated to show that the high ozone levels were due to smoke-influenced ozone production, not emissions from upstream EGUs. Figure 4 demonstrates that on the days of the selected episode (gray column representing June 18 and 19, 2020), ratios of EGU NOx emissions compared to the MDA8 measurements at the Northbrook Water Plant were among the lowest measured during the 2020 ozone season (red bars). High ratios of EGU NOx to MDA8 would be an indicator that EGU anthropogenic emissions sources played a significant role in ozone formation on those days. Figure 10 provides a clear indication that despite the low EGU NOx emissions observed in the days leading up to the event period, ozone production rose uncharacteristically during the event. Therefore, data support the attribution of high ozone concentrations to smoke influenced ozone production.

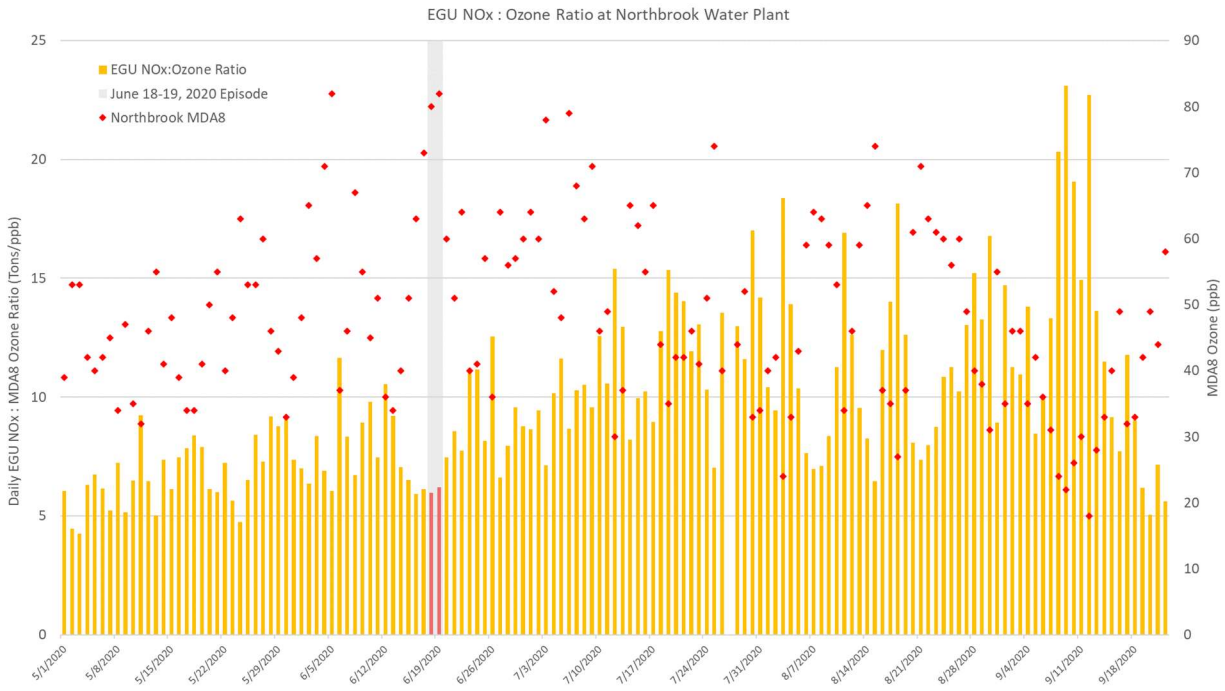

Figure 10. Daily 2020 Ozone Season EGU NOx Emission: Northbrook Water Plant MDA8 Ozone Ratios

Comments that Do Not Dispute or Contradict Factual Evidence Provided in the Exceptional Events Demonstration

15. Illinois EPA has not made the regulatory significance and practical effects of an exceptional event concurrence from EPA sufficiently clear to the public.

As noted in Section A of the Illinois EPA's Exceptional Events Demonstration, the regulatory significance and practical effects of the Demonstration are that, if USEPA agrees that the smoke influenced days described in the Demonstration should be excluded from the regulatory calculations for the design value of the Northbrook ozone monitor, "Exclusion of the June 18 and 19, 2020, data may allow the Chicago-Naperville, IL-IN-WI 2008 ozone nonattainment area (Chicago NAA) to be eligible for redesignation to attainment for the 2008 ozone National Ambient Air Quality Standard (NAAQS)." Further, in the same section, the Demonstration also states, "Depending on 2021 and 2022 data, exclusion of the June 18 and 19, 2020, data may have regulatory significance for other actions by the Administrator, including future clean data determinations, redesignations, violations of the 2008 ozone standard, triggers of contingency measures under the 2008 ozone NAAQS, or violations of the 2015 ozone NAAQS."

The Exceptional Events Demonstration is a submission of the scientific evidence showing that the data from the two smoke influenced days in question should be excluded from calculations of the design value, and not a discussion of policy implications. The Agency is committed to improving air quality to meet the more stringent 2015 ozone NAAQS, which will require continued efforts to improve air quality in the Chicago NAA in order to attain the standard.

Additionally, and contrary to the concerns expressed by the commenters, a redesignation to attainment of the 2008 ozone standard would likely not result in forgoing emissions reductions, and greater reductions in ozone precursor emissions will be necessary to meet the 70 ppb 2015 ozone standard in the area.

16. Different categories of nonattainment trigger different regulatory requirements. We understand that several of the requirements for "severe" areas are already in place in Chicago because of previous "severe" nonattainment designations under older ozone standards. But a reclassification to "severe" would also trigger additional requirements beyond those currently in place or that would be required under only "moderate" nonattainment for the 2015 standard. First, the threshold to qualify as a "major source" in a "severe" area would be only 25 tons of emissions per year, compared to the current 50 tons per year for "serious," or 100 tons per year for "moderate." Second, as a "severe" nonattainment area under the 2008 standard, the Chicago area would have to show a 9% rate of progress, and as a "moderate" nonattainment area under the 2015 standard, it would have to show a 15% rate of progress. But these percentages cannot be directly compared because they are relative to different baseline emissions years – 2011 for the 2008 standard and 2017 for the 2015 standard.

With regard to the first part of this comment, it is true that the thresholds to be considered a "major source" under a serious or severe classification are 50 tons per year ("TPY") and 25 TPY respectively, and under a moderate classification the threshold is 100 TPY. However, as the commenters note, "several of the requirements for 'severe' areas are already in place in Chicago because of previous 'severe' nonattainment designations," and the major source threshold is one of these requirements. The applicability threshold for volatile organic material ("VOM") rules in the Chicago NAA has been and remains at most 25 TPY since the area was classified as severe under the 1997 ozone standard. Illinois also effectively has NOx RACT rules for the area, and while Illinois EPA recognizes they have not been federally-approved, that is mainly due to minor issues related to averaging procedures. Illinois EPA is currently working on possible amendments to its NOx RACT rules that will aid in meeting the more stringent 2015 standard, and Illinois will also need to demonstrate to USEPA that the rules it has in place in coming years will be adequate to attain the lower standard.

Regarding the second part of this comment, the 2015 standard will indeed require more emission reductions for meeting rate of progress. While the commenters are correct that it is not a straightforward comparison between a 9% reduction and a 15% reduction because of the difference in the base years for the two standards, the fact still holds that meeting the 2015 standard requires greater emissions reductions than being classified as severe for the 2008 standard. The commenters did not have the necessary information to do the mathematical calculation, but the Agency can provide some clarification on this issue. While the calculation of the rate of progress goals will not be quite as simple as the following because of the specific requirements for calculation of rate of progress requirements, the Agency can present a simplified version of the calculation that demonstrates how the required reduction under the 2015 NAAQS will be greater. The total number of tons per day ("TPD") of ozone precursors in the Chicago NAA in the 2011 baseline inventory is approximately 1159 TPD, and a 9% reduction for the 2008 standard would require a reduction of approximately 104 TPD. The total

for ozone precursors in the Chicago NAA in the 2017 baseline inventory is approximately 865 TPD, and a 15% reduction for the 2015 standard would require a reduction of approximately 130 TPD. Thus, it can be easily seen that the required reductions under the 2015 NAAQS will be approximately 26 TPD greater than those required by being classified as severe under the 2008 NAAQS.

Comments That Are Not Relevant to the Topic of the Exceptional Events Demonstration

17. Since November 2020, the Illinois Secretary of State has not been enforcing the vehicle emissions testing requirement for vehicle registration renewals. We understand that the Secretary of State will begin enforcing the requirement again in March 2021, and that vehicles for which the registration was renewed without an emissions test will be recalled in the future for testing. However, because the public has heard from these news reports that there are no consequences for skipping emissions tests until the Secretary of State restarts testing and because vehicles skipping tests will not be tested until next year, more excessively polluting vehicles will be on the roads for many months to come.

The Illinois Secretary of State's reported, temporary lack of enforcement of the vehicle emissions testing requirement has no relation to or impact on the Illinois EPA's Exceptional Events Demonstration. It is not even related to whether the area is designated nonattainment under the 2015 standard, the 2008 standard, or both. The vehicle emissions testing program was being implemented and enforced during the Exceptional Event days of June 18 and 19, 2020. Further, the Illinois EPA does not believe that the Illinois Secretary of State's reported, temporary lack of enforcement of the vehicle emissions testing requirement will have an impact on the State's ability to attain and maintain applicable ozone standards or that it equates to excess emissions or a loss of emission reductions of any consequence.

The vehicle emissions testing requirement has not been waived. Rather, the Illinois Secretary of State's action to temporarily not enforce is tantamount to an extension of time. The Illinois EPA will require these vehicles to test in the off year, thereby preventing a waiver of the vehicle emissions testing requirement and realization of any resulting emission reductions.

Of the approximately 2.1 million vehicles that are tested each year, on average only a very small percent of these vehicles fail an emissions test. The failure of a vehicle emissions test through an on-board diagnostic (OBD) system does not equate to excess emissions. OBD is an early warning system that indicates a vehicle may have an issue that could cause emissions to exceed applicable federal emission standards. The small number of vehicles that have renewed without a vehicle emissions test and the minuscule subset of these vehicles that on average would have failed the emissions test is insignificant and therefore inconsequential from an emission reduction standpoint. Also, it is notable that not all failing vehicles are concentrated in one area, but rather are spread out over the nonattainment area. Further, motorists renewing without a passing vehicle emissions test are already testing and passing vehicle emissions tests. It is likewise notable that this temporary action by the Illinois Secretary of State did not occur during the ozone season and will not extend into the 2021 ozone season.
Given these facts, one cannot conclude that the Illinois Secretary of State's temporary lack of enforcement of the vehicle emissions testing requirement results in an impact on the Illinois

EPA's Exceptional Events Demonstration or attainment of applicable ozone standards. Further, given these facts, the Illinois EPA believes that the impact on emissions, if any, will be insignificant and inconsequential.

18. We are concerned that there may be higher emissions of NOx in the Chicago area because of the possibility of widespread tampering with NOx controls on diesel trucks.

Similar to the previous comment, this issue is not relevant to the issue under consideration, nor is it related to whether the area is designated nonattainment under the 2015 standard, the 2008 standard, or both. This is a compliance matter and handled separately from SIP issues like an Exceptional Events Demonstration or a redesignation. The Agency is also aware of this issue and is interested in the magnitude of potential NOx emission reductions that could be achieved in addressing this issue for the purpose of attaining the more stringent 2015 standard regardless of whether the area is redesignated for the 2008 ozone NAAQS. But this issue has no bearing on the matter at hand.

19. USEPA has not finished its actions in response to the D.C. Circuit's remand of the designations for several counties in the Chicago area under the 2015 ozone standard. Until it is known whether these areas will be included in the nonattainment area for the 2015 standard, it remains possible that redesignation under the 2008 standard will result in a geographically smaller nonattainment area, so that no nonattainment area restrictions apply in those counties or partial counties.

This issue is also irrelevant to the discussion of the Exceptional Events Demonstration and the evidence it presents. The Agency acknowledges that the USEPA has not finalized its actions related to the Circuit Court remand, however this issue will not significantly impact emissions in the Chicago NAA whether or not the area is redesignated for the 2008 ozone NAAQS. Regulations that apply to sources in counties referred to by the commenters will continue to apply in any maintenance plan for the 2008 standard and under the 2015 standard; indeed, requirements found in many of the regulations will apply to McHenry County whether or not it is labeled as a nonattainment area. The decision regarding these counties rests in USEPA's hands, so the comment in response to the Illinois Exceptional Events Demonstration is misplaced.